UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,154	09/11/2003	Richard Wiss	SYB/0092.01	2153

31779 7590 02/04/2010

JOHN A. SMART
201 LOS GATOS
SARATOGA RD, #161
LOS GATOS, CA 95030-5308

EXAMINER	
PHAM, KHANH B	

ART UNIT	PAPER NUMBER
2166	

MAIL DATE	DELIVERY MODE
02/04/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Appeal 2009-004040
Application 10/605,154
Technology Center 2100

Ex parte RICHARD WISS, NAVEEN PUTTAGUNTA, DEREK G. REIGER, and DAVID R. SETZKE JR.

Decided: February 4, 2010

Before JEAN R. HOMERE, JAY P. LUCAS, and THU A. DANG, *Administrative Patent Judges*.

DANG, *Administrative Patent Judge*.

DECISION ON APPEAL

I. STATEMENT OF CASE

Appellants appeal the Examiner's final rejection of claims 1-43 under 35 U.S.C. § 134 (2002). We have jurisdiction under 35 U.S.C. § 6(b) (2002).

We affirm.

A. INVENTION

According to Appellants, the invention relates generally to information processing environments and, more particularly, to improved methods for replicating transactions which are posted in a data processing system, such as a database management system (DBMS) (Spec. 2-3, ¶ [0006]).

B. ILLUSTRATIVE CLAIM

Claim 1 is exemplary and is reproduced below:

1. A method for replicating a transaction from a primary database to a replicate database while the replicate database remains available for use, the method comprising:

recording information about a transaction being performed at a primary database in a transaction log;

synchronously copying the information about the transaction in the transaction log to a mirrored transaction log, so as to create at the replicate database an exact copy of the transaction log;

generating a reconstructed transaction based on the information about the transaction copied to the mirrored transaction log; and

applying the reconstructed transaction at the replicate database while the replicate database remains available for use.

C. REJECTIONS

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Shih US 6,615,223 B1 Sep. 2, 2003
(filed on Feb. 29, 2000)

Reidel, "When Local Becomes Global: An Application Study of Data Consistency in a Networked World," IEEE, 266-271 (2001).

Claims 1-8, 10-23, 25-32, and 34-43 stand rejected under 35 U.S.C. § 102(e) as anticipated by Shih; and

Claims 9, 24, and 33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the teachings of Shih in view of Riedel.

II. ISSUE

The threshold issue before us is whether Appellants have shown that the Examiner erred in determining that Shih discloses "synchronously copying the information about the transaction in the transaction log to a mirrored transaction log, so as to create at the replicate database an exact copy of the transaction log" (claim 1).

III. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Shih

1. Shih discloses that synchronous replication is well-known, which includes the propagation of changes to all replicas of a data object within the same transaction as the original change to a copy of that data object (col. 1, ll. 25-33).
2. One approach to data replication involves the exact duplication of database schemas and data objects across all participating nodes in the replication environment (col. 1, ll. 53-55).
3. Shih discloses using shadow log to propagate changes from one replication site to another, wherein change log entries from change log are copied to a replication log to be propagated to other replication sites (col. 9, ll. 28-32).
4. The replication log is a shadow of the change log (*Id.*).

IV. PRINCIPLES OF LAW

35 U.S.C. § 102

In rejecting claims under 35 U.S.C. § 102, "[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation." *Perricone v. Medicis Pharm. Corp.,* 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citation omitted). "Anticipation of a patent claim requires a finding that the claim at issue 'reads on' a prior art reference." *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1346 (Fed Cir. 1999) "In other words, if granting patent protection on

the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated, regardless of whether it also covers subject matter not in the prior art." *Id.* (citations omitted).

The *claims* measure the invention. *See SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). "[T]he PTO gives claims their 'broadest reasonable interpretation.'" *In re Bigio*, 381 F.3d 1320, 1324 (Fed. Cir. 2004) (quoting *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000)). "Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989)).

35 U.S.C. § 103

> Section 103 forbids issuance of a patent when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007).

In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," and discussed circumstances in which a patent might be determined to be obvious. *Id.* at 415 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966)). The Court reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 416.

The Court noted that "[c]ommon sense teaches . . . that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle." *Id.* at 420. "A person of ordinary skill is also a person of ordinary creativity, not an automaton." *Id.* at 421.

The Federal Circuit recently recognized that "[a]n obviousness determination is not the result of a rigid formula disassociated from the consideration of the facts of a case. Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not." *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 416). The Federal Circuit relied in part on the fact that Leapfrog had presented no evidence that the inclusion of a reader in the combined device was "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Id.* at 1162 (citing *KSR*, 550 U.S. at 418).

V. ANALYSIS

Claims 1-8, 10-23, 25-32, and 34-43

Though Appellants admit that "Shih does describe a sync replication system" (Br. 8), Appellants argue that "the Shih system does not have an exact copy (mirror image) of the log (Appellant[s'] claim limitation of 'mirrored transaction log') at replicate sites" (*Id.*). In particular, Appellants contend that "mirrored copies are created using block-level operations,

completely without concern as to what the data means within any given block" therefore "one may create a replicate that is a byte-for-byte, block-for-block exact (physically identical) copy of the primary" (Br. 10). That is, Appellants contend that "the design choice of Shih introduces a major disadvantage" while "Appellant[s'] system, in contrast, does not perform Shih's resource-intensive approach of translating records" but instead is an approach "that preserves the original log file format and, thus, can work with any database system without changing the underlying database log writing function" (Br. 9-10).

The Examiner notes that "the phrase 'exact copy' was added to original claims in the Amendment filed May 03, 2006, and the Specification does not contain the phrase" (Ans. 9). Thus, the Examiner interprets "exact copy" as "'mirror image', or 'copy of the transaction log' created by 'synchronously copy[ing] the information about the transaction in the transaction log to a mirrored transaction log', as recited in claim 1" (*Id.*). The Examiner further finds that "Appellant[s] improperly defined the term 'exact' to be 'physical[ly] identical', while the specification does not provide support for the term" (Ans. 11).

The Examiner then finds that, in Shih, "log entries from the change logs [are] copied from one to another without any modification" (*Id.*), and that, though "Appellant[s] cited several portions of the Shih reference to show that Shih's system requires translation of the change instructions before storing the translation log… these[] text portions are not relevant to

the issue because they are performed before the step of creating exact copy of the transaction log" (*Id.*).

Appellants' contention that Appellants' system "does not perform Shih's resource-intensive approach of translating records" but instead "can work with any database system without changing the underlying database log writing function" (Br. 9-10) is not commensurate in scope with the language of claim 1. That is, claim 1 does not preclude any "approach of translation records" and does not require working "with any database system without changing the underlying database log writing function" as Appellants contend. Similarly, claim 1 does not require that the mirrored copies are "created using block-level operations, completely without concern as to what the data means within any given block" as Appellants contend (Br. 10).

Accordingly, the issue that we address on appeal is whether Appellants have shown that the Examiner erred in determining that Shih discloses "synchronously copying the information about the transaction in the transaction log to a mirrored transaction log, so as to create at the replicate database an exact copy of the transaction log" as *recited* in claim 1.

We begin our analysis by giving the claims their broadest reasonable interpretation. *See In re Bigio*, 381 F.3d at 1324. Furthermore, our analysis will not read limitations into the claims from the specification. *See In re Van Geuns*, 988 F.2d at 1184. Claim 1 simply does not place any limitation on what "exact" means, includes or represents, other than that the

information is copied to the mirrored transaction log as to create the "exact copy" of the transaction log. In fact, as the Examiner notes, "the phrase 'exact copy' was added to original claims" and "the Specification does not contain the phrase" (Ans. 9). Accordingly, we will interpret the term "exact copy" broadly and reasonably, and will not limit the term to "physically identical" or "mirror image" wherein "mirrored copies are created using block-level operations, completely without concern as to what the data means within any given block" as Appellants contend (Br. 10).

As Appellants admit, "Shih does describe a sync replication system" (Br. 8). As Shih discloses, synchronous replication includes the propagation of changes to all replicas of a data object within the same transaction as the original change to a copy of that data object (FF 1). In particular, synchronous replication involves the *exact* duplication of database schemas and data objects across all participating nodes in the replication environment (FF 2, emphasis added). In Shih, a shadow log is used to propagate changes from one replication site to another, wherein change log entries are copied to a replication log to be propagated to other replication sites (FF 3) and the replication log is a shadow of change log (FF 4). As the Examiner finds, in Shih, "log entries from the change logs is copied form one to another without any modification" (Ans. 11). An ordinarily skilled artisan would have understood Shih's replication log containing the copied change log entries to be the exact copy of the change log. That is, we find the replication log that contains the exact change log

entries copied from the change log to comprise the exact copy of the change log.

Thus, we agree with the Examiner's finding that Shih discloses "synchronously copying the information about the transaction in the transaction log to a mirrored transaction log, so as to create at the replicate database an exact copy of the transaction log" as recited in claim 1.

Accordingly, we find that the Appellants have not shown that the Examiner erred in rejecting independent claim 1 under 35 U.S.C. § 102(e). Appellants do not provide separate arguments for claims 2-8, 10-23, 25-32, and 34-43 from those of claim 1. Accordingly, we also find that the Appellants have not shown that the Examiner erred in rejecting claims 2-8, 10-23, 25-32, and 34-43 falling with claim 1 under 35 U.S.C. § 102(e).

Claims 9, 24, and 33

As to claims 9, 24, and 33, Appellants repeat that "Shih does not teach or suggest Appellant[s'] claim limitations that require the creation of an exact copy or mirror image of the transaction log at the replicate database" (Br. 13), and thus, "[m]erely strapping [Riedel's] file block replication onto Shih's system does not reproduce Appellant[s'] claimed approach" (Br. 14). Further, Appellants contend that "[n]either Shih nor Riedel provides any teaching, suggestion, or other motivation" to "incorporate the file block replication combination with Riedel" (*Id.*).

However, the Examiner concludes that, though Shih "does not explicitly teach: 'said synchronous copying step includes replicating at a file block level," Riedel discusses "the advantage of replicating at file block level versus file level" (Ans. 12). As set forth in the Examiner's conclusion, it would have been obvious to combine the references as suggested by Riedel because "a successful system for global data placement should operate at the lowest-level of these interfaces in order to provide the maximum compatibility with existing applications" (Ans. 8).

We agree with the Examiner. As discussed above, we find no deficiency regarding the teachings of Shih. Further, we conclude that the substitution of one known element (replicating at file block level versus file level as taught by Riedel) for another (the replication of Shih) would have yielded predictable results to one of ordinary skill in the art at the time of the invention. That is, we find that providing replication at a file block level as taught by Riedel to the replication of Shih is no more than a simple arrangement of old elements, with each performing the same function it had been known to perform, yielding no more than one would expect from such an arrangement. *See KSR*, 550 U.S. at 417. Appellants have presented no evidence that using Riedel's replication at a file block level to the replication of Shih was "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog*, 485 F.3d at 1162 (citing *KSR*, 550 U.S. at 418-19).

Thus, Appellants have neither shown that the Examiner failed to make a prima facie case of obviousness, nor have they persuasively rebutted the Examiner's prima facie case. Accordingly, we find that Appellants have not shown that the Examiner erred in rejecting claims 9, 24, and 33 under 35 U.S.C. § 103(a).

VI. CONCLUSIONS

(1) Appellants have not shown that the Examiner erred in finding that claims 1-8, 10-23, 25-32, and 34-43 are anticipated by the teachings of Shih.

(2) Appellants have not shown that the Examiner erred in finding that claims 9, 24, and 33 are unpatentable over the teachings of Shih and Riedel.

(3) Claims 1-32 are not patentable over the prior art of record.

VII. DECISION

We affirm the Examiner's decision rejecting claims 1-8, 10-23, 25-32, and 34-43 under 35 U.S.C. § 102(e) and claims 9, 24, and 33 under § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

peb

JOHN A. SMART
201 LOS GATOS
SARATOGA RD, #161
LOS GATOS, CA 95030-5308